

Session 6

Paul Woodfield

Branlow Foundation Solutions



Paul Woodfield: Branlow Foundation Solutions

Speaker

FOUNDATION SOLUTIONS

Paul Woodfield

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Technical Director

BSc, CEng, MStructE, MICE
20 Years experience - Kellers, Brian
Clancy, Curtins

BRANLOW FOUNDATION SOLUTIONS

(UK)

11/11/2000 June 2000

The Good, The Bad & The Ugly



FOUNDATION SOLUTIONS

The Good, The Bad & The Ugly



The Good

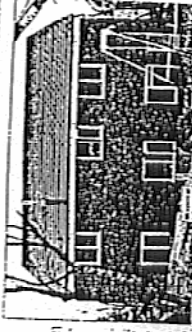
Leighstone Court, Chester, England

The Bad

Astley Moss Manchester, England

The house that sank

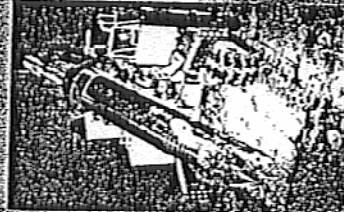
'Our dream home was like living on the Titanic'



Daily Mail
December 1999

The Ugly

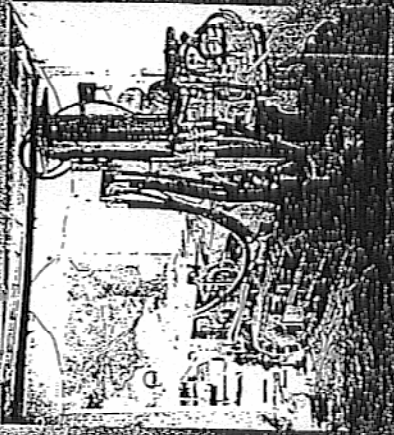
Float Viaduct
Carstairs,
Scotland



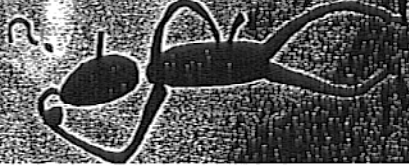
THE GOOD - Leighstone Ct

HISTORY

- 3 Storey block of flats
- Traditional masonry
- 1990 attempted stabilisation
- 1998 Further subsidence
- Further Site Investigations carried out



Leightstone Court - Chester



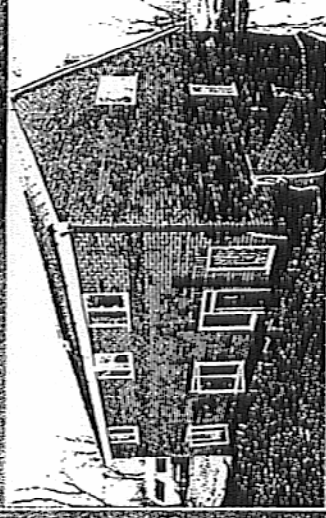
PROBLEMS

- 25m loose fill
- Massive sandstone boulders
- Water level of approx 23m
- Limited headroom and site restrictions
- Two occupied adjacent flats
- Tight programme required

THE BAD - Astley Moss

HISTORY

- Original house using precast segmental (glued) piles by others
- after a few months settled on one side
- shortly followed by the other side - finished level and mainly intact but nearly 2m lower.



NON-SINK SOLUTION: Foundation specialist Graham has completed piling work for a new house that is being built alongside one that gained notoriety by subsiding 1.5m in five weeks. The original house, 10m wide at 4m, in Manchester, was less than two years old when it started to sink. The £320,000 house was built on a 4m deep layer of peat overlying very soft clay that goes down to a depth of 12-15m. Graham worked in conjunction with the local council to help develop a solution for the new house. They're full-time underfoot the piling work with the original house.

Contract Journal May 2000

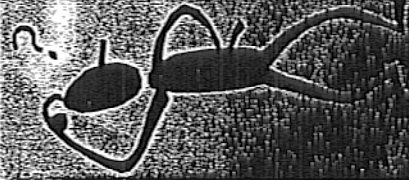
Leightstone Court - Chester



SOLUTION

- Core through 700mm thick slab
- Install approx 70 No ODS drilled piles
- Isolated RC ground beams
- Value approx 275k
- Duration 16 weeks

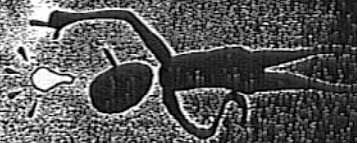
Astley Moss



PROBLEMS

- 9m peat overlying 3m very soft clay
- High ground water (at ground level)
- Difficult Access

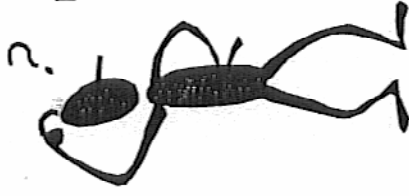
Astley Moss



■ SOLUTION

- Install 20 No Steel Cased bottom driven piles
- depth 16 to 17m - founded in dense sand and gravels
- provision made from negative skin friction
- Value approx £20k
- Duration 2 weeks

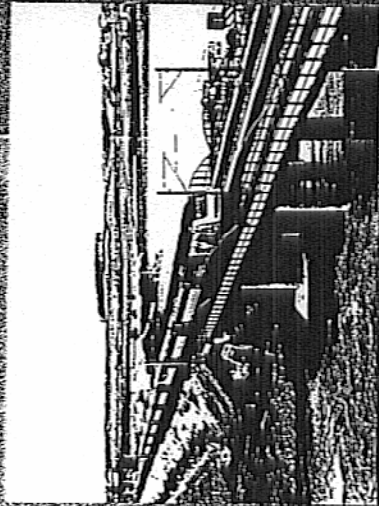
Float Viaduct - Scotland



■ PROBLEMS

- Severe programming constraints
- Phased access to work areas
- River flooding
- Limited headroom
- Difficult access
- Environmental
- Ground problems

Float Viaduct - THE UGLY



■ HISTORY

- 4 Span bridge over River Clyde
- Site situated 1 mile from country road
- WCML closed for 5 day possession period
- Foundations constructed under live bridge

Float Viaduct - Scotland



■ SOLUTION

- Installation of 250 No piles
- Depth 15 - 28m
- Modifications required
- SWL = 425kn
- Multiple rig working